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CONGENITAL INTERVENTRICULAR OPENING OF THE HEART IN AN ADULT OF ROBUST HEALTH; OR RUPTURE OF THE SEPTUM TWO MONTHS BEFORE DEATH?

[Reported to the Boston Society for Medical Improvement, and communicated for the Boston Medical and Surgical Journal.]

BY J. B. S. JACKSON, M.D.

IN the number of the Boston Medical and Surgical Journal for Nov. 5, 1863, Dr. Thomas H. Gage, of Worcester, reported a case that was very remarkable in several points, and that he regarded as one of congenital interventricular opening of the heart. The specimen was one that he gave to me for the Museum of the Medical College, and that I exhibited to the Society, reading at the same time Dr. G.'s full history of the case that was afterwards published. It has occurred to me lately that it may have been a case of rupture of the septum; and, if such should seem to have been the fact, it would prove to be a more interesting case even than it was upon the first supposition.

The above new view of this case has been communicated to Dr. Gage; and although he still adheres to his first opinion, and gives his reasons for so doing in a note that I have received from him, and of which I shall hereafter give the substance, he has in the most liberal spirit, a spirit that has always characterized him as a lover of truth and a man of science, allowed me to make this communication to the Society and to publish it in the JOURNAL.

The patient was 19 years of age, and not merely healthy, but unusually robust. The fact, reported by Dr. G., of his jumping overboard from a man-of-war in the harbor of New York, a few months before his death, swimming one eighth of a mile to the shore, and then walking quite 200 miles to his home in Worcester County, and feeling in no way the worse for it all, is proof enough of his good general condition. In several cases of interventricular opening that I have investigated I have been surprised at the tolerance by the

system of this condition of the heart; but I have never seen a case in which the health was so perfect as in this one; and I cannot believe that the opening could have existed previously to the last two months, at which period I am now inclined to think that a rupture of the septum took place.

The supposed cause of this rupture would seem to have been very insufficient. He lifted a heavy stone; but how heavy a stone, and how much of an effort he made, does not appear. Such efforts are constantly being made with impunity, and yet the consequences in the present case were certainly very serious. Besides the interventricular opening, a small, thin aneurismal sac was found to arise from one of the pouches at the origin of the aorta, and this last is supposed by Dr. Gage to have formed when the stone was lifted, the interventricular opening having previously existed. A severe and sharp pain was at once felt in the lower part of the chest, and from that time there was dyspnœa, with marked physical signs. Dr. G. supposes that, owing to the congenital opening, the aorta was weak and unsustained at its origin, and, the pouch giving way under the effort the man made, the aneurism was formed. Cases of interventricular opening, however, have been sufficiently numerous here, I think, for us to have observed something of the kind before this, if there was any such tendency at the origin of the aorta; but I have never known of a case, here nor elsewhere.

The thick, firm and smooth edges of the opening in the septum, or at least of the muscular portion, are regarded by Dr. G. as evidence of its having been congenital; but I think that two months may have been sufficient for its cicatrization.

The rupture of the septum would seem to be a terrible accident, and so it certainly is when produced by external violence; but if, in an organ previously healthy, it occurs simply and without any complication, I can very well conceive, from what we know to happen when aneurisms now and then burst into the cavities of the heart, that the functions might go on, though laboriously. There was, however, a complication in this case; the aortal pouch yielded, and it would seem not improbable, when the very small membranous portion of the septum just below the valves ruptured, that one of the pouches of the aorta that are in such close anatomical relation to it, should be involved in the injury and give way. It does not seem to me that this complication would be likely to add much to the gravity of the case for the time.

After the accident, the functions of the heart were performed laboriously, but the man was in a vastly better condition than we should have thought possible. "He was up and about all the time," Dr. G. says, "drove into town (7 miles) repeatedly, and even when informed of the serious nature of his disease was very incredulous, simply because he suffered so slight inconvenience from it." This condition, Dr. G. thinks, would not be inconsistent with the accident

to the aortal pouch; and is the chief reason for his disbelief in the idea of the rupture of the septum at the same time. I have nothing, however, to add upon this point to what I have already said.

The hypertrophy of the heart was much greater, Dr. G. thinks, than could have taken place in so brief a period; but muscles are developed very rapidly under increased action.

A fact that has never been explained, so far as I am aware, in the case of interventricular opening of the heart, is the abnormal condition of the pulmonary valves; and, so far as I have observed, it is a constant fact. Dr. G., however, found them in his case, "nearly or quite normal; contrary to what is usually observed in these cases," and certainly though one of them was partially cut away, as seen in the specimen, now before the Society, all that remains of the valves is perfectly normal; and this fact, I think, would weigh strongly against the idea of a congenital opening.

There is, of course, no question that the immediate cause of death was owing to the rupture of the aneurismal sac into the right ventricle.

Rupture of a healthy heart, from a strain, is certainly something that I have never heard nor thought of. We have, however, transverse fracture of the patella from muscular action, occasional rupture of the tendons of the voluntary muscles, and I have recently read the history of an exceedingly interesting case of rupture of the tendinous portion of the diaphragm that occurred in one of our soldiers, and was due to great muscular exertion upon the field of battle—the man dying in a few days from strangulation of the intestine that had passed through into the left pleural cavity. If the septum of the heart, then, did give way, we should expect to find the rupture in the membranous rather than in the muscular portion.

In closing these remarks upon the above case, I wish to make my acknowledgments publicly to Dr. Gage, with whom I have been on the most friendly terms since he entered the profession, and to thank him for the liberality to which I have already referred, and which he has shown in allowing me to bring the case once more to the notice of the profession.

REVIEW OF DR. TULLY'S SYNOPSIS OR CLASSIFICATION.

[Continued from page 196.]

Difficulty arising from the possession of two or more Powers by a single Article.

In contemplating the articles to be arranged in these twelve classes already established upon true and natural bases, it will be perceived at once that in several instances two or more of these fundamental powers are possessed by a single article. Opium, for instance, is both stimulant and diaphoretic as well as narcotic; and the question

arises, how are such articles to be classed? At first this seems to complicate the plan, interfere with its simplicity and naturalness, and create doubts as to its feasibility. But it is a difficulty that will be unavoidable upon any plan, and no more insurmountable upon this than upon any other. After a little reflection it will appear less formidable than at first, and finally, instead of presenting any serious objection to the plan, it will be found one of the circumstances that renders it most eligible; or at least, that the complicated view of the articles presented by this discovery is one of the circumstances that renders their classification so indispensable. It is a difficulty that must be overcome, therefore, at all events.

It will be seen that upon this plan, it is an arrangement of the powers themselves rather than the articles; or an arrangement of the articles according to their powers; and, consequently, that the articles must follow where the powers lead. When asked whether opium is to be classed with the narcotics, stimulants or diaphoretics, the answer is, with all of them, and with as many others as it may be found to possess different and distinct fundamental powers. The rule, therefore, is, that each article must be included in as many classes, and be pharmacologically expressed by as many names as it possesses useful fundamental powers; the name of the power which is most prominent and useful taking the precedence. The narcotic power of opium being the first in importance, its stimulant the second and its diaphoretic the third, its pharmacological appellations would stand thus—narcotic, stimulant and diaphoretic; and so with all articles that possess a plurality of powers. This presents a short and easy way for each individual to make known his own views of the comparative importance of the different powers of any given article having more than one.

In this view the feasibility of the plan appears less doubtful, and if its simplicity and naturalness are less apparent at first, they will become more so from experience in its use, till finally it will be found the very best for all the objects contemplated that can be devised. Nevertheless, this circumstance—the possession of two or more powers by a single article—has doubtless been a stumbling-block to many, and, in connection with the other difficulties to be considered, has created a sort of universal scepticism as to the practicability of this or any other plan. Pereira, doubtless with precise and true views of what was necessary to reduce materia medica to a science, said that, "to ascertain the number of different and distinct powers in materia medica, and show their application to the treatment of diseases, was impossible in the present state of our knowledge." But the adaptation of this plan and the principles to guide us in its execution, will be better understood after considering the other difficulties and the mistakes to which they have given rise; after which the proposition rejected by Pereira may not appear so intensely impracticable as he supposed.

Mistakes in classing or referring Articles.

Numerous attempts had been made to complete the synopsis, yet no one had been satisfied with his success. The dissatisfaction, however, arose, apparently at least, not from any apprehension that there had been any mistake in selecting foundations for the remaining classes, but simply from the fact that notwithstanding from eight to ten more classes had been added, there were still several articles that were inevitably excluded or that could find no place in either of them.

Two expedients had been resorted to, to get rid of this difficulty: first, to crowd as many of these refractory articles as possible into one or another of the classes already decided upon, whether they had been rightly founded or not, and of course with but very little regard to any rules or principles by which the classing or referring of articles should be regulated. But besides the one already laid down, viz., that each article should have a place in as many classes as it exerts different and distinct fundamental powers, there is another to which but very little attention had been paid, but the importance and reasonableness of which must now be shown.

When an article possesses two or more powers, it is generally the case that these differ more or less, and sometimes very widely, in importance. Sometimes only one of two or three powers which an arcle possesses is of any material use; or, however useful the others may be as exerted by other articles, as exerted by this, either from their weakness or inadequacy, or from their interfering or being in some way incompatible with its most valuable power, the article is never prescribed for either of them. Now the rule to be observed in such cases is, that each article should be classed according to its useful rather than its useless powers; and when all are useful, that which is most so should take the precedence and be most prominently represented in the classification. To disregard this rule would be to defeat the ends and objects of classification, as may be shown by referring to one or two mistakes of this kind.

If, for instance, the curative effects of colchicum, an article that can hardly be dispensed with, are not at all dependent upon its cathartic power, and if this article is never used for its cathartic effect, it would be wrong to class it with the cathartics simply to get rid of it and because it happens to possess this useless and non-medicinal along with its valuable power. By referring to the synopsis, the student would not get the remotest idea of its use or of the peculiarities in its operation which he most needs to know. If never used as a cathartic, among the cathartics colchicum would be an intruder; and thus the article would be misrepresented on the one hand, while the integrity and usefulness of the classification would be damaged on the other.

And there would be the same objections to classing it with the diuretics, for unless it cures gout and rheumatism—the only diseases

in the treatment of which it has obtained a reputation—by virtue of its cathartic or diuretic operation, it would be wrong to class it with either, and without the slightest reference to the power upon which its efficacy depends. Now it is well known, or if not it should be, that the curative effects of colchicum, in these diseases, are the most strikingly displayed when it can be taken freely without producing either catharsis or diuresis, and that when it operates freely in either of these ways but very little dependence can be placed upon it for the cure of gout or rheumatism. It will occur to most readers that colchicum has been classed heretofore with the cathartics and diuretics, and nowhere else.

The most valuable power of mercury in its various combinations, and the one which the experienced physician always has in view, is not at all represented by the place assigned it in any classification heretofore proposed. In regard to this article, however, the power alluded to is so generally recognized, though but partially and imperfectly, as to be some guide to its therapeutic application; though the student would get no idea of it by referring to the synopsis, where he would find it classed with the cathartics, emetics and sialogogues. It is seldom prescribed for its cathartic, emetic or sialogogue effects exclusively; the operation which is most desired, and which is always had in view, has no necessary connection with, but is distinct from, either of them.

Errors of this kind can hardly fail to mislead, and, if common, would render the classification worse than useless. The facts, objects and phenomena and their relationships, which it is the very object of classification to represent and help us to keep in mind, would be wholly misrepresented, and thus lead to errors in practice, especially among young practitioners, who would be obliged to unlearn by experience what they had been taught by consulting the synopsis. But the worst effect would be to divert us from the true course of investigation, and render the discovery of a true classification more difficult and seemingly hopeless.

There are other articles in the same predicament; we have only referred to instances enough to show the importance of the rule that articles should be classed according to their valuable rather than their useless, or comparatively useless powers. Errors in classing or referring articles have been so numerous as to have greatly complicated the other difficulties—one arising from the possession of two or more powers by a single article; the other that of selecting true foundations for the remaining classes, and which is yet to be considered; and from these three causes combined the scepticism spoken of has become so fixed and prevalent that a proposition even to present a true classification for materia medica would be received with general indifference or aversion, and would be scouted by some.

The other expedient alluded to has been the introduction of a heterogeneous class, to "be regarded as a temporary and convenient

receptacle for those otherwise unclassifiable articles that experience has proved useful in disease."—*(Wood.)* It is not necessary that the articles it is to include should agree at all in their operative effects, or have anything in common except their inability to find a place elsewhere. This is the foundation of the class. We need no further proof of the imperfection of all our arrangements than a proposition of this kind, coming so recently and from a leading pharmacologist. It is hardly necessary to point out its effects to derange the whole system. Its adoption, however, might not be quite as disastrous as it would be for the manufacturer of a microscope to take up with a single translucent glass on account of his inability to procure a transparent one of the right shape. On the whole, it is no more irritational nor worse in its consequences than that of crowding these articles into an unnatural position and among others with which they have little or no affinity. But as before said, the worst effect of these mistakes has been to produce the impression that a pharmacological is in no way preferable to a botanical, chemical and zoölogical, or even to a simple alphabetical arrangement; and consequently many authors upon the subject have adopted an alphabetical arrangement only.

Foundations for the remaining Classes.

We now come to the main difficulty, that of selecting true foundations for the remaining classes. To make every operative effect fundamental would be impracticable, and such an arrangement would be useless if it were practicable; and, besides, it would not be in accordance with the plan. Of course, we are liable to make mistakes here, and except in regard to the twelve true classes mentioned, it is quite certain that mistakes have been committed heretofore. A mistake implies a rule; if, therefore, there are any rules or principles to guide us in solving this difficulty, these should be our first objects of search. There is one that will be sufficiently obvious, and that has been alluded to already. The classes must be kept different and distinct; they must not be allowed to encroach upon, run into or interfere with each other. Hence their foundations must be different and distinct. Whether this rule had been expressly laid down or not, it had been strictly followed in the formation of the twelve true classes. Perhaps another may be deduced from a critical examination of these, and comparing them in this respect with those that have since been added. From such an examination it will be seen that they differ essentially. In the one case the power on which each class is founded is not different and distinct from all others, but is direct, primary, inherent and essential, and, under ordinary circumstances, uniform and invariable. In the other it is only indirect, secondary, incidental or occasional, or dependent on circumstances. From this discovery alone, it may be inferred that the remaining classes should be in analogy in this respect with those

the genuineness of which is admitted; and this inference will be verified when we come to consider the consequences of disregarding it.

If these rules are strictly adhered to there will, of course, be no class founded upon the secondary, incidental, or occasional effects of medicines—effects that take place indirectly and by virtue of some power which is already the foundation of another class. If, for instance, the anthelmintics of most authors consist wholly of narcotics, cathartics, tonics, or articles belonging to some other class, and produce their anthelmintic effects by virtue of their narcotic, cathartic, tonic, or some other power, it is clear that there can be no different and distinct anthelmintic power, and upon this plan no foundation for such a class. It would not be distinct from the other classes, and its introduction would interfere with the consistency and naturalness of the arrangement, and impair its utility to a far greater extent than might be supposed at first thought.

Without thoroughly comprehending the plan and the principles on which it is to be carried out, a class of anthelmintics may seem not only simple and natural, but needful; but when it is seen to be so unlike the others, and to have its foundation in certain effects, borrowed, as it were, from several of the fundamental powers, and, furthermore, that it will be made up of articles as unlike each other as possible, having no analogy except in a single effect, and this only an accidental one, its spuriousness becomes apparent.

Such a class would be in analogy with a class of antirritants, which no one has proposed, and for the reason, doubtless, that antirritant effects are always indirect or secondary, and take place from the operation of one or another fundamental power, according to circumstances or the pathological condition in which irritation is to be allayed. Narcotics are the most reliable antirritants in one case, nervines in another, antiphlogistics in another, demulcents in another, and perhaps emetics or cathartics in others. An antirritant effect, therefore, cannot be regarded as fundamental, and for the same reason that there should be no class of antirritants there should be none of anthelmintics. Sedative effects are only secondary, and take place in different pathological conditions from the operation of widely different fundamental powers. To say that an article is a sedative, an antirritant or an anthelmintic, settles nothing in regard to its fundamental power or the class to which it belongs; and to say that it is an arterial sedative would not be at all more definite. We may have a suggestion to make in regard to an anthelmintic power, however, after presenting the catalogue of classes and their definitions.

Again, if the refrigerants of most authors comprehend only the antiphlogistics, diaphoretics and tonics, and produce their cooling effects by virtue of one or the other of these powers, it is clear that there can be no different and distinct refrigerant power, and upon

this plan no foundation for such a class. But to show the importance of the rules we are endeavoring to establish, it is not necessary to allude to all the instances in which they have been disregarded.

First, then, the power on which each class is founded must be different and distinct from all others; and second, it must be direct, primary, inherent and essential, in distinction from an effect which is only indirect, secondary, incidental or occasional. Though it may be found that each of these rules amounts to very nearly the same thing, or that a strict observance of either will lead to very nearly the same results, yet it is necessary that both should be stated. Though Dr. Tully adhered to the latter as closely as his predecessors had done in the formation of the twelve true classes, yet it was not expressly stated by him, and hence he was under the necessity of inserting the word direct or directly in most of his definitions of the classes, which, it must be remembered, are definitions also of the powers on which they are founded.

There is another way in which these rules have been disregarded, viz., by making two or more classes founded upon one and the same power. The two classes demulcents and emollients, made by some to depend upon one and the same power, and the articles of both, should be included in one class. The manner in which a power is applied, whether externally or internally, should not be made the foundation of a class. And the same may be said of the rubefacients, the epispastics and the escharotics, three classes introduced by some, all dependent upon a single power. The degree in which a power is exerted should not be made the foundation of a class. The effects of mistakes of this kind are not so bad as those of adopting secondary or incidental effects as fundamental, as the distinctness of the other classes will not be interfered with. But the rule is, that each different and distinct, direct, primary and inherent power should be made the foundation of a single class.

If these rules are observed, some classes of long standing, the genuineness of which has never been called in question, must be discarded; but after due consideration it will be seen that there can be no object in retaining them; or at least that their supposed advantages will be more than counterbalanced by the disadvantages arising from their want of analogy with others and their consequent injury to the system; and though it may still be convenient and even necessary to recognize certain groups of articles that agree in producing certain secondary or incidental effects, however widely they may differ in their fundamental powers, and to speak of them as antirritants, anthelmintics, cologogues, antilithics, &c., yet to regard such groups as legitimate classes and foist them in as such, would make a medley of the synopsis, render it unnatural, incongruous or inconsistent with itself, and consequently useless for all the more important purposes of classification. Those who insist that such classes should still be

retained, should consider whether these secondary instead of the primary effects should not be made the basis or foundation of all the classes, which will be found equivalent to making the symptoms or pathological conditions, or something that pertains to diseases rather than something which belongs to medicines exclusively, the foundation of a classification for materia medica. We are confident, however, that no one who adopts this course, in whole or in part, will be satisfied with his success, and he will be very likely to arrive at the conclusion that what he had undertaken as so desirable must be abandoned as impracticable.

But if the number of classes is to be lessened by discarding some that are old, it may be increased by admitting others that are new. These, of course, are to be founded, as the others have been, each upon a power different and distinct from all others, direct, primary, inherent and essential, and, under ordinary circumstances, uniform and invariable. Dr. Tully directs attention to five such, and to one other, which, though it may have occasionally, it has not generally, been made the foundation of a class. Their claims to this distinction, their analogy with others, their comparative importance and the necessity of their being isolated, defined and thoroughly understood as elementary therapeutical knowledge, will be more clearly perceived when examined in connection with the twelve already decided upon, and after presenting the entire catalogue and their definitions.

Recapitulation of Rules or Principles to guide us in making a true Classification for Materia Medica.

The plan proposed being the true one, the rules that have been laid down for its execution are not of any one's choosing; they are simply natural and inevitable. Though Dr. Tully did not state them all expressly, they are all deducible from his mode of procedure, and may be worth repeating and arranging in a code as follows:—

1. In a true classification, every article and every process that can be usefully employed in the treatment of disease, except those relating to nursing and hygiene, can find a place and must necessarily be included in some one of the classes.

2. The classes must be founded upon the powers or operative effects of medicines, and upon them alone.

3. Each class must be founded upon a power different and distinct from all others.

4. Only those powers that are direct, primary, inherent and essential, in distinction from those effects which are only indirect, secondary, incidental or occasional, are to be taken as fundamental, and the number of classes should correspond with the number of such powers.

5. The name of each class should correspond with the name of the power on which it is founded; should be appropriate and have

a precise and definite meaning, or a meaning that all will understand alike if possible.

6. Hence each power or class should be defined with clearness, accuracy and precision.

7. In classing or referring the articles, each article should be put where it naturally belongs, instead of forcing it into an unnatural position, or among those with which it has little or no affinity.

8. Each article possessing more than one, should be classed according to its useful rather than its useless powers, and those that are most prominent and useful should take the precedence and be most prominently represented in the classification.

9. Each article should have a place, be treated of in as many classes, and should have as many pharmacological appellations as it possesses useful fundamental powers.

To disregard either of these rules would destroy the integrity of the system and render it comparatively useless. It would be like leaving out or changing a single wheel in a complicated machine.

Names for the Powers or Classes.

Before we give the catalogue, it is necessary to add a few words about names for the powers or classes. It is as important that these should be right as that the powers themselves should be clearly defined and the classes rightly founded. Those only who have observed the very intimate connection of thought with its instrument—language—can comprehend why it is that every important change or improvement in a science almost necessarily involves some change in its nomenclature, or why improvements in its nomenclature must so often go hand in hand with improvements in the science itself. Lavoisier explains it in this wise:—

"The impossibility of separating the nomenclature of the science from the science itself is owing to this, that every branch of physical science must consist of three things—the series of facts which are the objects of the science, the ideas which represent the facts, and the words by which these ideas are expressed. Like three impressions of the same seal, the word ought to produce the idea, and the idea to be a picture of the fact; and as ideas are preserved and communicated by means of words, it follows of necessity that we cannot improve the language of any science without at the same time improving the science itself; neither can we, on the other hand, improve the science without improving the language or nomenclature that belongs to it. However certain the facts of any science may be, and however just the ideas we may have formed of these facts, we can only communicate false or imperfect impressions of these ideas to others while we want words by which they may be properly expressed."—*Preface Elements of Chemistry, translated by Kerr.*

While materia medica is susceptible of improvement, therefore, we ought not to be frightened at new names, nor squeamish at pro-

posed changes in its nomenclature. If Dr. Tully's classification is worthy of adoption, it may be found expedient to adopt his nomenclature also. Let us attempt what none of his fault-finders in this respect have seemed to think of, viz., to comprehend his reasons for the new names and the changes he proposed.

As it is particularly important that we should start in the right direction, though we may chance to deviate from it in the course of our journey, so in the pursuit of science we should first of all obtain a thorough knowledge of its rudiments. Clear and precise ideas of these are necessary to direct and facilitate our subsequent progress, at every stage of which we shall have occasion to revert to them; or, failing to do so, we shall wander from the true course, till we find it expedient to retrace our steps, take the points of the compass with more care, and start anew. And there is another reason why we should be particularly anxious to start aright; we are to have fellow-travellers, co-laborers, whose suggestions, aid and encouragement we shall need; and though not able to pursue the self-same path, we should keep within hailing distance, or at least be enabled to keep up such communications as would be seriously interfered with were we to take widely different directions. That pharmacologists may become co-workers, they must have some common ground to work upon—some starting point, at least, upon which they are wholly agreed. They can neither argue intelligibly nor converse to mutual profit without a common understanding of first principles. Here, if nowhere else, they should see eye to eye.

The fundamental powers, of which so much has been said, are the rudiments of pharmacology—its first principles—the facts to which all other pharmacological facts bear so intimate a relation. We cannot take too much pains to get clear, accurate and precise ideas of them; their number, their individual peculiarities, their similarities and dissimilarities, or their relationships, should be as fully understood as possible. It is not so often thought of as it should be, that accuracy and precision here are no more needed for the success of our individual efforts than to enable us to coöperate and become mutual helps. It is no more important, therefore, that we should have accurate and precise ideas of these powers ourselves, than that we should have the means of communicating them with accuracy and precision to others; and as we are to communicate and receive communications so frequently, we should be enabled to express our ideas, not only with accuracy and precision, but with facility, or without circumlocution.

Hence each of these powers should have a name that is precise and unequivocal in its meaning, such, if possible, as is not liable to be perverted or differently understood by different individuals; for just in proportion as we differ in our ideas of first principles, or in the precise meaning of the terms by which our ideas are expressed, are we incapacitated for making and receiving communications and coöperating to mutual benefit.

To establish first principles and bring medical men to a mutual understanding of them would be a worthy object for the medical reformer; and he who takes the initiative, points the way and suggests the means, though his success may not be all that could be desired at first, will deserve well of the profession. Poets and orators seldom possess the highest qualifications for scientific research. It has been truly said, "that which sometimes gives a charm to eloquence and poetry is the bane of true science."—(*Bronson.*) In science, and for particular uses like those now under consideration, words with a doubtful or double meaning, however significant and appropriate they may be elsewhere, have no meaning unless the precise sense in which the writer or speaker uses them in each instance is understood.

Some of the names already cited for the true powers or classes, are objectionable for the reasons intimated. For these Dr. Tully substitutes new ones. This is regretted by some and strenuously objected to by others. But suggestions that lead us to think more closely, to express our thoughts more clearly and definitely, enable us to understand each other more perfectly, and thus to coöperate and become mutual helps—recipients of the benefits of each other's labors—come not casually or by accident, are born not of pedantry but of genius, and ought not to be unheeded for slight reasons. There is a fastidiousness among medical men in regard to names, which, if not unfavorable to the progress of medical science, from the way it manifests itself is proof sufficient that its nomenclature needs to be revised. It does not show itself on all occasions, for it often happens that a new name, or a word once obsolete, but newly revived, comes into use without a sign of regret or opposition from any source. But for the most part these are of ambiguous meaning. No doubt those who write the words arterial sedative, zymotic, and others quite as ambiguous if not more difficult of pronunciation, think they are stating their opinions, their experiences, arguing or giving information, without suspecting even that their readers, not knowing precisely what is intended by them, will simply get their labor for their pains. Both writers and readers, however, if unaccustomed to evidence, may have a fondness for words that have the semblance of reasoning but signify nothing, and a dislike for those that have a precise and definite meaning, though they may have been selected on this very account to be used where accuracy and precision are especially needed.

[To be continued.]

THE statistics of military prison life on Johnson's Island, where 7771 rebel prisoners have been received during the last two years, show a mortality of only 210, or little more than 2¼ per cent. The percentage of deaths among the United States prisoners confined at Salisbury, North Carolina, was more than nine times greater. That is, it reached to about one fourth of the entire number.

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Boston Hospitals.—The fifty-first annual report of the Trustees of the Massachusetts General Hospital and the first annual report of the Board of Trustees of the new City Hospital have made their appearance at the same time, and we trust that an abstract of them may not be without interest to our readers, even in these glorious days of victory.

The numerous changes which have taken place in the medical staff of the former institution during the past year are mentioned in becoming terms by the Trustees, and have been already noticed in these pages. Notwithstanding the increased expenses of living, its charities have been as generously bestowed upon every needy applicant as ever before, though the extract here given shows how great are the difficulties under which the trustees are obliged to struggle, and how important it is that the public should not overlook its home charities while ministering so liberally to those at a distance.

"The debt of the Corporation now amounts to $83,414.50, and has become a serious difficulty in the management of the institution. With no immediate prospect of any addition to our general funds, with no diminution in the cost of the necessaries of life, and with an obligation to continue to administer the great charities of the institution, it has become a source of anxious solicitude to the Trustees, how the expenditures of the present year are to be met, and how some limit may be placed upon the growth of the debt. The subject has been referred to a special committee of the board, and there is a reasonable expectation that the measures to be recommended for its adoption will receive the sympathy and aid of the community.

"It requires no argument here to prove the need or importance of the Hospital. For more than forty-three years, it has continued day by day its unceasing ministrations to the sick and suffering. It has been watched over and tended by our most skilful physicians, and has been sustained by a liberality on the part of its benefactors worthy of the warmest admiration. It has never been more useful or more needed than at the present moment, when the population of this city and neighborhood are rapidly increasing—when the cases of sickness and disease arising from the war become daily more numerous, and when the heavy expenses of food, raiment, and shelter, augment the difficulties of the poor, and especially of those requiring medical or surgical assistance."

By the report of Dr. Shaw, resident physician to the Hospital, it appears that the whole number of patients during the year was 1749—paying 361, free 1388. There were discharged during the year—well, 916; much relieved, 135; relieved, 255; not relieved, 84; not treated, 61; dead, 130; insane and eloped, 20. Males, 961; females, 640. Total, 1601. The proportion of deaths to the whole number of re-

sults is 8 per cent. The number of persons treated as out-patients was 5619, of which 3761 were medical, and 1858 were surgical cases.

Dr. Tyler, Superintendent of the McLean Asylum, presents the usual interesting account of the management of that division of the institution under his charge. The number of insane treated during the year is 302; the number admitted, 101—56 males and 45 females; the number discharged, 107. Of the latter, 42—22 males and 20 females—were recovered. Twenty-one—10 males and 11 females—were much improved. Fourteen—7 of each sex—were improved. Three—2 males and 1 female—were not improved. And 27—15 males and 12 females—have died. A new building in the gentlemen's department has been erected, and the grounds have been enlarged and improved by the enclosure of separate airing courts. A large part of the report is devoted to a consideration of the necessity of hospital treatment for the insane and of the symptoms of incipient insanity, which would save infinite misery to many a household were its teachings more generally understood.

A list of the medical officers of the institution is here given :—

Board of Consultation.—James Jackson, M.D., John Jeffries, M.D., Edward Reynolds, M.D., C. E. Brown-Séquard, M.D., John Homans, M.D., Winslow Lewis, M.D., S. D. Townsend, M.D., H. I. Bowditch, M.D.

Officers of the Hospital.—Benjamin S. Shaw, M.D., *Resident Physician.* George C. Shattuck, M.D., Augustus A. Gould, M.D., Charles E. Ware, M.D., Francis Minot, M.D., Calvin Ellis, M.D., Samuel L. Abbot, M.D., *Visiting Physicians.* J. Mason Warren, M.D., Henry J. Bigelow, M.D., Henry G. Clark, M.D., Samuel Cabot, M.D., Geo. H. Gay, M.D., Richard M. Hodges, M.D., *Visiting Surgeons.* James C. White, M.D., *Physician to Out-patients.* Calvin Ellis, M.D., *Microscopist, and Curator of the Pathological Cabinet.* James C. White, M.D., *Chemist.*

Officers of the McLean Asylum.—John E. Tyler, M.D., *Superintendent.* Mark Ranney, M.D., J. H. Whittemore, M.D., *Assistant Physicians and Apothecaries.*

The Report of the Trustees and Superintendent of the City Hospital is published in connection with an account of the proceedings at its dedication, the act of the legislature and ordinance of the city relating to it, the rules and regulations, and a preface descriptive of the buildings; the whole forming a pamphlet of 145 pages, embellished by a front and side view, sections and ground-plans of the edifice. In our account of the proceedings at the dedication in May last, we promised our readers some description of a building illustrating in so many respects modern improvements in hospital construction, which can, perhaps, be best redeemed by publishing the following extract from the preface :—

"The present buildings are six in number: the central building, two pavilions, the boiler house, gate house, and horse sheds. The central building, which is 80 feet by 60, is connected with the pavilions by corridors open above and closed in below, and contains in the basement story a store room, apothecary's shop, laboratory, dining room for the employés, the kitchen and other rooms necessary for the culinary operations of the Hospital. Upon the first floor are

the rooms occupied by the Superintendent and his family, the Superintendent's office, and the business room of the Trustees, which is also used for the reception of visitors. The second story consists of apartments for pay-patients: in the third story are rooms for the temporary use of ophthalmic patients, and closets for storage; and above is a spacious operating room, octagonal in form, suitably lighted, heated, and ventilated, with seats for about 175 students. Patients are brought to the operating room from all the lower stories by means of a lift moved by machinery, situated in the basement story.

"This building is surmounted by an iron dome with a cupola, the apex of which is 148 feet above the level of the street.

"The two pavilions are substantially alike in their construction. They are 148 feet in length and 48 in width, three stories in height beside the basement. In the basement of each are the nurses' kitchen and store room for supplies, small wards for the temporary accommodation of patients, and also a room appropriated for the clothing of the patients in the pavilion, which is arranged with stationary boxes, numbered to correspond with the beds. In the first, second, and third stories are large wards, with dining rooms for convalescent patients, nurses' chambers, bath rooms, water closets, and other conveniences, room for the attendant resident graduates, and a consultation room for the surgeons and physicians. These wards are each 80 feet long and 27 feet 8 inches wide. The two lower are 16 feet, and the upper 10 feet in height. Each ward will accommodate comfortably 28 patients. The Hospital furnishes ample accommodations for 225 patients, and should occasion require 275 might be admitted. The Hospital is furnished throughout with the Tucker patent iron bedsteads, furnished with an attachment for raising the head of the patient. As the bedsteads are constructed with a wooden spring bottom, one hair mattress only is required for each. * * * * *

"The Hospital is warmed and ventilated by a system recently introduced into this country, with some important novelties never before applied. Air forced through ducts, by means of a large fan at the boiler-house, and warmed by coils of steam-pipes placed in these ducts, is carried to every part of the buildings, thus affording the means of heating as well as ventilation. Direct radiation is provided for in a portion of the rooms, to be used in case of necessity. The steam pipes over which the air passes for heating the different apartments in the central building, are placed in coils in chambers connected with the air ducts. Those for heating the pavilions are located in the air passage, beneath the floor under the corridors leading to the pavilions. The passage through which the air passes after having left the main duct on its way to the pavilions, is divided into two compartments, in one of which is located coils of one inch wrought-iron pipe. The steam, after passing from the boilers in a large iron pipe, is distributed through these coils, being regulated by valves under charge of the engineer. After passing through the coils it enters a steam trap located at the foot of the coil, which is so constructed that no steam can pass, where, after being converted into water, it is conveyed through a cast-iron pipe to a reservoir, located at the head of the air duct; from thence it is pumped into the boilers at a temperature of from 180 to 190 degrees: that this process saves fuel and water is proved from the fact that the boilers have been used for several

days without any but the water so returned. Through the other compartment, cold air passes. These two compartments are so arranged that the cold and warm air are brought together in the several wards where they come in contact, before entering the room, by a simple apparatus which can be controlled by the nurse or attendant. By this arrangement the *atmosphere* in each ward can be changed every thirty minutes; the *temperature*, however, remaining the same, and without causing any perceptible current in the ward. The foul air passes from the wards through registers at the sides, which are also under the control of the attendants. In each of the two middle wards are four marble fire-places, which are also arranged for ventilation.

"During the short period which the Institution has been in operation, the heating and ventilation have been found agreeable and satisfactory.

"In the office of the Superintendent is placed a standard regulating clock, which, independent of its electrical mechanism, presents some novel features; having two mercurial pendulums so connected and controlled as to vibrate perfectly together, and to act the one upon the other, mutually checking any tendency of either toward irregularity of oscillation."

"In the principal hall and in the distant wards are placed the electric companion clocks (five in number), which have a simple mechanism, consisting of a lever which, when lifted and allowed to fall by its own gravity, moves an "escapement," so constructed as to be propulsive, and continuous in its hold upon a single toothed wheel. This wheel and its arbors—which communicate directly with the motion work controlling the differing action of the hour and minute hands—is the substitute for "the train" of a common clock; therefore requires no pendulum, weights, springs, or winding up; and moves only when magnetism, generated by electricity, is induced in the electro-magnet which acts upon the lever before mentioned.

"The system not only secures uniformity of time in the different parts of the Institution, but relieves the Superintendent of the care of many clocks, and the wards of the ticking which marks the seconds of passing time—generally so annoying to the sick or the suffering patients.

"Attached to the standard clock is also the patent mechanism which constitutes it an *electro-magnetic watch-clock*. By this the perambulations of the night watchman over the premises are legibly recorded, in such manner that the Superintendent may know not only whether the watchman has been vigilant, but also the precise time of his passing through the different parts of the buildings. The apparatus, like the time system, is operated on the same *principle* as that of the electric telegraph, the watchman in this case being the operator, simply by turning a key, in different parts of the premises, which act momentarily establishes and again breaks the electric circuit, and causes the instrument to record, from time to time, the presence of the watchman at the different points which his instructions require him to visit."

Since the opening of the Hospital in June last, a period of seven months, the number of patients and results have been as follows:—Males admitted, 288; females admitted, 187. Total, 475. Discharged, 327; deaths, 47; remaining in Hospital, 101. Total, 475. Out-patients treated at the Hospital, medical and surgical, 195; out-patients

treated at the Hospital, ophthalmic, 176. Total, 371. Average number of patients, new and old, in attendance upon visiting days in the Ophthalmic Department, 25. Whole number of patients treated at the Hospital from June 1 to Dec. 31, 1864, 846. Tables of the diseases treated and their results, of accidents, operations and causes of death are presented by the superintendent, and form a very valuable addition to the report. The nature of the operations in the ophthalmic department was as follows :—

NATURE OF OPERATIONS.	Males.	Females.	Total.	Successful.	Unsuccessful.	Relieved.
Cataract	16	12	28	22	3	3
Enucleation	3		3	3		
" by Critchett's method	1		1	1		
Iridectomy	10	1	11	10	1	
Iridesis	2		2	2		
Total	32	13	45	38	4	3

The objects of the Hospital are thus stated by the Trustees :—"It may not be unnecessary to repeat what has been so often stated, that this is not, in the strict sense of the word, a free hospital. It is free to those industrious persons who, from sickness or misfortune, have been temporarily disabled, and who can on recovery maintain themselves. Neither is it intended for the reception of paupers, for whom ample accommodations are provided elsewhere. It is designed to do the greatest good to the greatest possible number, and for this reason chronic and incurable cases, which would speedily and permanently fill the wards, are not received. Accommodations for this class are greatly needed, and we trust the time is not distant when private charity shall have founded an institution for this object, which shall be worthy of an enlightened and liberal community." The deaths of Drs. Ware and Dalton, and the resignation of Dr. Homans, sen., has made several changes necessary in the list of officers of this institution also, although so recently founded. The present medical and surgical staff is composed of the following gentlemen :—

Consulting Physicians and Surgeons.—S. D. Townsend, M.D., Edward Reynolds, M.D., Winslow Lewis, M.D., John Jeffries, M.D., Silas Durkee, M.D., A. A. Gould, M.D. *Visiting Physicians.*—Wm. W. Morland, M.D., Fitch Ed. Oliver, M.D., J. Baxter Upham, M.D., J. N. Borland, M.D., J. G. Blake, M.D., John P. Reynolds, M.D. *Visiting Surgeons.*—C. H. Stedman, M.D., C. E. Buckingham, M.D., D. McB. Thaxter, Jr., M.D., Charles D. Homans, M.D., Algernon Coolidge, M.D., David W. Cheever, M.D. *Ophthalmic Surgeon.*—Henry W. Williams, M.D. *Admitting Physician.*—Howard F. Damon, M.D. *Pathologist.*—Charles W. Swan, M.D.

Dr. William Johnson Walker, who died at Newport, R. I. (where he had resided for the last four years), on Sunday last, was a son of the late Major Timothy Walker, a prominent citizen of Charlestown, of the last generation, and a cousin of the Rev. James Walker, D.D.,

of Cambridge. He was born in Charlestown in 1790, graduated at Harvard College in 1810, pursued his medical studies with Governor Brooks of Medford, and continued them abroad, having the field of Leipsic among his opportunities. For skill in the treatment of disease as a surgeon, he had no superior in the State during the many years in which he practised his profession. Some marked peculiarities of character were unfavorable to his universal popularity as a man, but he always secured the confidence of some of the warmest and most devoted friends. Among his numerous patients he was regarded with feelings of gratitude and esteem, and no man ever performed more acts of private kindness than he, especially toward the lowly and the poor.

Dr. Walker gave up the practice of his profession nearly twenty years ago, much to the grief of those who, having had experience of his skill and tenderness, could not but regard it as a wrong that he should cease to use his wonderful talent in the direction of merciful ministrations to the sufferings of his fellow creatures.

After giving up his profession, Dr. Walker turned his attention to financiering, and during the last few years has accumulated a very large property, by the exercise of his shrewdness in investments rather than in any bold speculations. He had in these years given away some four hundred thousand dollars, and is thought to have left at least a million and a quarter to be disposed of according to his last will.

He leaves a widow—the daughter of the late Joseph Hurd of Charlestown—four daughters, one son, and the widow and children of another son. His will divides equally among these seven heirs about two hundred and twenty thousand dollars, or a little more than thirty thousand to each. He gives about forty thousand dollars, in legacies of a thousand dollars each, to women of his acquaintance, mostly friends of his early years. The remainder of his great estate, being nearly or quite a million, he divides equally to Tufts College, Amherst College, The Institute of Technology, and The Boston Society of Natural History. It is understood that he had proposed to make Harvard—his Alma Mater—the chief recipient of his munificent gifts, but that he imposed conditions or restrictions which were not acceptable. Amherst and Tufts Colleges will have occasion to place a high estimate on his large generosity to them. He is another of many Unitarians like the Lawrences, Chandler, Munson, &c., who have looked beyond sectarian limits in the distribution of great bequests.—*Transcript.*

At a meeting of the Boston Society of Natural History, held on the evening of April 5th, 1865, the President announced the decease, at Newport, on April 2d, of its liberal benefactor, Dr. W. J. Walker, and offered the following resolution, which was passed unanimously:

"*Resolved*, That the Boston Society of Natural History recognize in the death of Dr. William Johnson Walker the loss of their greatest benefactor, and in view of his munificent gifts to this Society and his beneficent aid to the cause of Education and Science, we would ever hold his name in honorable and grateful remembrance."

THE annual meeting of the Suffolk District Medical Society was held on Wednesday, April 5th, at 4, P.M., at its hall in Temple Place.

During the past year, twenty-five (25) new members have joined the Society, and eight (8) members have died. The following list of officers were elected for the ensuing year:—*President*, Dr. J. Mason Warren. *Vice President*, Dr. Francis Minot. *Secretary*, Dr. John Green. *Treasurer*, Dr. C. D. Homans. *Librarian*, Dr. C. Ellis. *Supervisors*, Drs. G. H. Gay, D. McB. Thaxter (So. Boston). *Commissioner on Trials*, S. Durkee. *Censors.*—Drs. F. E. Oliver, J. N. Borland, J. P. Reynolds, D. W. Cheever, H. F. Damon. *Councillors.*—Drs. J. Bigelow, J. Homans, J. Jeffries, A. A. Gould, J. Flint, P. M. Crane (E. Boston), D. H. Storer, J. B. S. Jackson, E. Palmer, H. I. Bowditch, J. M. Warren, G. C. Shattuck, H. J. Bigelow, C. E. Buckingham, H. G. Clark, S. Cabot, Jr., J. Ayer, C. E. Ware, A. B. Hall, J. B. Upham, S. L. Abbot, A. A. Watson, W. W. Morland, W. E. Coale, G. Hayward, H. W. Williams, F. Minot, B. Brown, J. B. Forsyth (Chelsea), C. Ellis, C. D. Homans, W. G. Wheeler (Chelsea). *Delegates to the American Medical Association.*—Drs. J. Bigelow, C. E. Buckingham, D. W. Cheever, A. Coolidge, John Dean, J. S. H. Fogg, A. A. Gould, G. Hay, O. W. Holmes, R. M. Hodges, G. S. Hyde, J. S. Jones, Charles Mifflin, H. K. Oliver, G. H. Nichols, Alex. Poole, J. P. Reynolds, A. Ruppaner, B. S. Shaw, D. D. Slade, D. H. Storer, W. H. Thorndike, W. E. Townsend, J. C. White. *Committee on Social Meetings.*—Drs. J. Ayer, H. I. Bowditch, C. D. Homans, C. Stevens, C. G. Page.

JOHN GREEN, *Secretary.*

DR. DEAN'S University Course of Lectures is again postponed, on account of continued illness. Due notice will be given of their commencement.

VITAL STATISTICS OF BOSTON.

FOR THE WEEK ENDING SATURDAY, APRIL 8TH, 1865.

DEATHS.

	Males.	*Females.*	*Total.*
Deaths during the week - - - - - - -	52	51	103
Ave. mortality of corresponding weeks for ten years, 1853—1863,	40.9	39.3	80.2
Average corrected to increased population - - - - -	00	00	88.22
Death of persons above 90 - - - - - - - -	0	0	0

PAMPHLETS RECEIVED.—Annual Report of the Trustees of the Wisconsin Hospital for the Insane.—Proceedings of the Nineteenth Annual Meeting of the Ohio State Medical Society, June 21st and 22d, 1864.—Special Report on Prisons and Prison Discipline, under authority of the Board of State Charities in Massachusetts.—The Medical Profession, &c.; an Address delivered by Ezra M. Hunt, M.D., President of the Medical Society of New Jersey, at its 99th Annual Meeting, Jan. 29th, 1865.—On the Direct Influence of Medicinal and Morbific Agents upon the Muscular Tissue of the Bloodvessels, by R. Cresson Stiles, M.D., Physician to Kings County Hospital, N. Y.

DIED,—At Newport, R. I., suddenly, on the 2d inst., Dr. William J. Walker, formerly of this city, and well known as a most liberal contributor to many scientific and other public institutions in the State—aged 74.

DEATHS IN BOSTON for the week ending Saturday noon, April 8th, 103. Males, 52—Females, 51. Accident, 3—apoplexy, 2—inflammation of the bladder, 1—inflammation of the bowels, 1—congestion of the brain, 2—disease of the brain, 3—inflammation of the brain, 1—bronchitis, 3—consumption, 16—convulsions, 4—croup, 3—diarrhœa, 4—dropsy of the brain, 4—drowned, 2—epilepsy, 1—erysipelas, 1—continued fever, 1—scarlet fever, 1—typhoid fever, 1—disease of the heart, 5—infantile disease, 2—intemperance, 1—disease of the kidney, 2—inflammation of the lungs, 11—marasmus, 2—measles, 2—old age, 3—paralysis, 1—peritonitis, 1—pleurisy, 1—premature birth, 4—puerperal disease, 1—rheumatism, 1—smallpox, 3—disease of the spleen, 1—syphilis, 1—thrush, 1—unknown, 6.

Under 5 years of age, 40—between 5 and 20 years, 6—between 20 and 40 years, 21—between 40 and 60 years, 19—above 60 years, 17. Born in the United States, 65—Ireland, 24—other places, 14.